

Appn. # 09/683,685 (Aleksandar Susnjar) Exam.: Verbrugge, K General Remarks 1/7

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Application Number: 09/683,685
Application Filed: 02/03/2002
Applicant: Aleksandar Susnjar (30379)
Title: High-Speed Disk Drive System
Examiner: Kevin Verbrugge
Art Unit: 2188

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To: Commissioner for Patents,
Washington, D.C. 20231

**RESPONSE TO SECOND OFFICE ACTION
(NON OFFICIAL / DRAFT)**

In response to Office Action mailed September 24th, 2003, please read the included review of restrictions and references made by the examiner.

My invention was interpreted as five distinct inventions (subcombinations) useable together. The subcombinations are, however, distinct from each other if they are shown to be separately usable.

The examiner mentions that "In the instance case, each of the inventions has separate utility as in systems that don't have the other inventions. None of the groups requires any of the other groups, proving that they are independent." However, no such utility examples are identified or proofs that any one subcombination does not require another.

MPEP § 806.05(d) quote:

The examiner must show, by way of example, that one of the subcombinations has utility other than in the disclosed combination.

...

The burden is on the examiner to provide an example.

As no examples are identified and provided the subcombinations cannot be deemed distinct.

My invention started with a single idea of making a high speed hard disk drive overcoming the limitations of current technology. While developing that idea I, as the inventor, faced a number of technological challenges that had to be solved before the idea became possible, workable and efficient.

Please note that the efficiency of the invention is paramount, because speeds can always be achieved otherwise – e.g. by connecting many hard disk drive units and have them work in unison (for example "RAID"). The challenge was the ability to keep today's devices sizes, minimize financial and technological requirements and not at all sacrifice the original performance goal. That forms an additional goal of actually having to develop not only the technology to achieve performance, but to make it as simple as possible.

My invention was created from this original and solutions to technological problems in achieving it. This does not make the original idea distinct from technological solutions making

it possible. Quite the contrary. An idea that is not workable with existing technology cannot be patented unless it contains the descriptions of additional technology that is required.

Furthermore, in case of my invention, solutions to technological challenges can be deemed technological advances, but they are a part of the original invention as they are particularly optimized for that purpose only and simply do not make sense and/or are not efficient otherwise.

The examiner also notes:

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes is indicated as proper.

Because these inventions are distinct for the reasons given above and the search required for each group is not required for any other group, restriction for examination purposes is indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes is indicated as proper..

Parts of my invention are classified into following classes and subclasses:

1. class 711 (Electrical computers and digital processing systems: Memory) subclass 112 (Direct access storage device – DASD)
2. class 360 (Dynamic Magnetic Information Storage or Retrieval), subclasses 246.6 (Plural heads for each disk side) and 78.05 (Coarse and fine head drive motors)

All of the above classifications are inter-related. By definition of it, "memory" is an information storage and retrieval device. Magnetic disk memory is one valid type of such memory.

There is a reason for having these classifications. They very well divide many inventions into organizable sets. Prior art in this area has indeed been concentrating into identified classes and subclasses trying to make each subcomponent faster by itself.

For example, teaming up coarse and fine head drive motors to improve seek times and precision or multiplying number of heads per disk side to reduce the spans that any had must travel.

However, there is a very important difference with my invention. Firstly, it is not at all limited to magnetic memory (class 360). It only uses it as an example but I made sure that it can also be used for magneto-optical, optical and even any other, future, type of disk-based memory. The principals of the invention remain the same. From that perspective the invention does cover aspects of class 360, but it is not at all limited to it and covers more.

Furthermore, no parts of my invention are usable by themselves other than in the context and embodiment of my invention as a whole. For example, the part of my invention that covers (but is not limited to) class 360 subclass 78.05 (Coarse and fine head drive motors) does not improve performance of the hard disk drive by itself. It does not decrease seek times. It does not simplify prior art or make it more efficient alone. That part of my invention is the integral part of my invention as a whole and enables it.

Simply sketching up a non-workable idea without an embodiment having any advantages over prior art does not make an invention. One could sketch up a car with many engines by just placing them in available spaces. This would not be the invention. Discovering what to do with those engines and how to control and use them together without sacrificing usefulness of the car would be an invention.

In the same way my invention is the disk drive system achieving higher speeds than prior art. To do so it contains a number of improvements over the prior art. These improvements, however, cannot be considered separate inventions. They are solutions to challenges presented

and they have no separate use of their own as will be shown in further text.

A total of five aspects of my invention are identified as separate inventions. As provable and workable examples of their utility are provided, they cannot be considered separate. These aspects are identified with roman numerals from I to V, as in the last Detailed Office Action response.

Please note the following:

Aspect (II) is not efficiently achievable by itself due to thermal and other deformations of platters, causing the tracks of the same logical cylinder to be misaligned. Aspect (V) resolves this problem efficiently and without expensive upgrades while still maintaining robustness of the design. Furthermore, aspect (V) has an effect only when used with other aspects in this invention. The only benefit it brings is the possibility to achieve other aspects of this invention and nothing else.

Aspect (I) does not lead performance improvement without (V) because it would take multiple revolutions to read the entire cylinder, as each track would require one full revolution. For hard disk drives with N surfaces this would, therefore, require N complete revolutions. As (I) is intended to speed up random access within the same cylinder, the probability of the system reading entire tracks in the order they are to be requested is lower than necessary to achieve any performance improvement. Therefore, in order to implement aspect (I) aspect (V) is also required.

Aspect (III) has no separate application as it does not yield any performance or other improvement without the other parts of the invention, notably (I), (II) and/or (IV). Without (IV) the allocation of heads would not be possible and only one would be used. An intelligent head allocation algorithm would be a part of specific implementation of aspect (IV). Without (II) the system becomes very inefficient as it would in most general cases achieve slower performance at a higher price than the system implementing only aspect (II).

Aspects (I) is, in fact a part of the aspect (IV) as it describes an improved behaviour of the drive. Both of these "sub-aspects" require aspects (II) and (V). Sub-aspect (IV) furthermore utilizes aspect (III). Aspects (II), (III) and (V) are specifically targeted for use within aspect (I+IV) and have no efficient utility outside of the context described by this aspect.

As shown, all the aspects are inter-dependent:

(Sub-)Aspect I - a part of aspect (IV). Requires aspect (V).

Aspect II – requires aspect (V).

Aspect III – no utility without aspects (I+IV) and/or (II)

Aspect IV – contains sub-aspect (I), requires aspects (II), (III) and (V).

Aspect V – no utility without aspect (I+IV).

Since no examples or other proof of any of these aspects was provided and it is shown here that aspects of my invention are not distinct separate, distinct inventions but parts of a single one and that classifications are at the very least ambiguous my invention can not be subjected to restriction and/or election requirement.

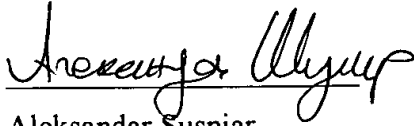
Lastly, mentioned aspects in my inventions, or any other possible extracts from my invention are in no case any more distinct from one another than aspects of recently awarded U.S. patent 6,546,499 (Redundant Array of Inexpensive Platters – RAIP, by Challener et al.).

Please note that, although as an inventor I would like to be able to say that I made multiple inventions, unfortunately I did not do so yet and I can only hope that I will in the future. I have many ideas, but they are not yet workable inventions and require technological advances to be implementable.

For example, one these ideas is the space vehicle engine that is not based on any traditional approach and does not require material to be ejected or otherwise acted upon in order to generate movement. It would not be wise or useful to try to patent the "main aspect" of that idea without resolving the underlying issues that are, again, directly related to it. It would not

be a patent but a record of a dream. Same applies to this invention. It is just one invention that happens to cover a number of seemingly unrelated technological issues.

Yours very respectfully,



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